MODIS TECHNICAL TEAM MEETING

February 15, 1996

The MODIS Technical Team Meeting was chaired by Robert Murphy. Present were Dorothy Hall, David Herring, Ken Anderson, Ed Masuoka, Wayne Esaias, Bruce Guenther, Al Fleig, Harry Montgomery, Yoram Kaufman, Barbara Putney, Steve Ungar, and Chris Justice.

1.0 SCHEDULE OF EVENTS

Feb. 20 - 21	MODLAND-SDST Workshop at GSFC
Feb. 27 - 28	MODIS SDST Science Advisory Panel at GSFC
March 18 - 19	EOS Test Site Meeting
March 20	MODIS Science Software Review at Valley Forge
March 22 - 23	SWAMP at Valley Forge
March 26 - 27	MODIS Quarterly Review at SBRS
April 30	MCST-Science Team Precursor Meeting at GSFC
May 1 - 2	MODIS Instrument Acceptance Review (tentative dates)
May 1 - 3	MODIS Science Team Meeting at GSFC
May 16 - 17	SWAMP Land Review

2.0 MINUTES OF THE MEETING

2.1 MODIS Project Reports

Anderson reported that SBRS has received twelve working 184-pin connectors from the vendor and is expecting thirteen more. If these thirteen pass final screen tests, then SBRS will have enough to complete the MODIS Protoflight Model (PFM). A decision regarding connectors for the Flight 1 Model is still pending.

Anderson announced that SBRS now has only 29 hybrids, of the 30 needed. SBRS is presently planning to use two of the hybrids originally intended for destructive physical analysis tests for the PFM, to bring the total available back to 31.

Regarding the requested EOS AM-1 spacecraft maneuvers, Anderson stated that the plans are becoming more complex due to the requirements of each EOS instrument, so that maneuvers has become a major issue at the spacecraft level. The EOS AM Project Manager Chris Scolese is asking each instrument team to be more specific about what maneuvers they want, and why.

2.1.1 STR-60 Test Canceled

Anderson announced that as of today, SBRSÕ plans to conduct the STR-60 water vapor absorption test are canceled. The test was canceled in the interest of saving time and money, and because it is not known whether that test would be effective anyway.

Kaufman cautioned the Team that the MODIS 1.375-µm band is a special channel sensitive to water vapor absorption and, as such, is different from any other channel on any other satellite remote sensing instrument. He feels that special care must be taken to preserve its performance and calibration.

MCST personnel will meet with Esaias and Kaufman to discuss options for testing the 1.375-µm band.

2.2 MCST Reports

Guenther announced that MCST has been developing MODIS on-orbit operation scenarios. He said he wants to revisit with the Team the discussion of a 60/40 data split versus a 50/50 data split for day and night modes. Guenther feels that a 50/50 split is the preferred option; although he concedes that there may be some concerns regarding the size of onboard storage capabilities.

Masuoka stated that SDST entered a 50/50 day-night mode split in its request to ECS for onboard processing and storage capabilities, so that shouldnÕt be a problem.

Guenther pointed out that a 50/50 split allows adjustment of where the split between day and night mode occurs, which could allow the Team to obtain near terminator data from adjacent orbits to prevent losing any data. He asked for input from the Science Team.

Esaias said he agrees that a 50/50 day-night mode split is the preferred option over a 40 daytime, 60 nighttime split because it allows better coverage of sea ice and high latitude areas. He suggested looking at a ± 45-degree swath when comparing overlap.

Guenther asked if SDST has the ability to perform orbital simulations. Fleig responded affirmatively. Guenther suggested that the two support groups work together to simulate the day/night mode operation.

2.2.1 MCSTÕs ATBD Õ95

Guenther reported that MCST has delivered ATBD Õ95 for final review and signature to the MODIS Team Leader Vince Salomonson. MCST will distribute the document as soon as Salomonson approves it.

2.2.2 MCST Validation Plan

Guenther stated that MCST is carrying in its schedule development of the MCST Validation Plan. Also, Michael King, EOS senior project scientist, has asked Phil

Slater, MODIS Calibration Group leader, to develop a validation plan. Guenther said he is unsure what the overlap or convergence between those two plans will be. The MCST Validation Plan will describe the tools to be used on orbit to validate the MODIS Level 1B product and its uncertainties. These tools include vicarious calibration, the MODIS on-board calibrators, the moon, and other measures consistently derived in concert with the MODIS data set. Guenther wants to ensure that the on-board calibrators mesh with the planned vicarious calibration methods.

2.2.3 Charged Capacitance Problem at SBRS

Montgomery reported on a recent conference call he attended with SBRS, in which they discussed a problem with the charged capacitance wells on MODIS overflowing and saturating. SBRS has a cooled sensor to solve that problem, but if the cooled sensor reaches the minimum temperature (estimated by G. Daelemans to be -1 degree C, ±5 C) then it could drive the thermistors for the on-board blackbody off scale (less than -3C). For temperatures less than -3C the telemetry puts out meaningless data. To compensate, SBRS then heats the blackbody. Montgomery stated that the blackbody is isothermal and heating it violates this condition. He would rather that SBRS changed the scale of the thermistor or the electronics. It was generally agreed by the Technical Team that this is a problem that must be addressed.

2.2.4 Scattering Characteristics of the External View Warm Surround

Guenther told the Team that when MODIS is in orbit and looks in the infrared region out at cold space through the space view, it will be looking through the external warm surround. MCST is now working to understand how much the scattering characteristics of the warm surround will affect that view. He hopes to have some answers by next week.

2.3 SDST Reports

Putney reported that there is still an issue as to whether using both reflectance and radiance data will increase the volume requirements significantly. Guenther responded that with the exception of Mark Abbott, all Science Team members are writing their algorithms to use reflectance, not radiance, data. He pointed out that MCST still must ensure that with its reflectance product it can still make scene corrections if it ever has to. Currently, scene correction is conceptualized as a radiance correction.

Masuoka reminded the Team that the ECS (Hughes EOS Core System) Critical Design Review (CDR) begins April 15, 1996. SDST must submit final adjustment to ECS for product size. He stated that if MCST wants to increase the size of the MODIS Level 1B product over its originally estimated size, then it must let Masuoka know as soon as possible. MODIS resource requirements will be discussed at the CDR.

2.3.1 Beta Delivery Status

Masuoka announced that installation of the MODIS Beta software in the GSFC DAAC will begin on Feb. 23. He noted that copying MODIS software to 8-mm tape for the Beta delivery tied up a tape drive needed for MAS processing, causing the MAS processing schedule to slip a week. The MODIS beta software will be input into the GSFC DAAC by Feb. 23, which is one month later than planned because the system needed an additional month for IV&V (Independent Verification and Testing) by ESDIS Project. The purpose of IV&V is to ensure that the whole ground system works before uploading the final at-launch software.

2.3.2 SCF Plan

Masuoka announced that he is sending out a draft of the MODIS SCF Plan in order to receive feedback from the individual SCFs. He hopes to be able to flag any special computing requirements in that document.

He told the Team that he went to Miami to meet with Bob EvansÕ group and review their schedules. He said that all of the Ocean GroupÕs deliveries were made on time and that EvansÕ group has done an excellent job.

2.3.3 End-to-End Processing Descriptions

Masuoka reported that SDST is meeting with its interfaces to the respective MODIS discipline groups to revise the end-to-end processing descriptions of the science software and SDSTÕs contributions to that software.

2.3.4 64-bit Versus 32-bit Processing

Masuoka reminded the Team that earlier he had talked about converting the MODIS software to 64-bit to see how it performs on the new SGI processors. He found that the SGI compiler allows 32-bit mode in native code optimized for SGI Challenges. The 32-bit native mode is being evaluated. Currently, he does not plan to use 64-bit data objects. If the team wants 64-bit data objects, then he prefers to defer this capability to the Version 2 software because of the tight schedule. For now, SDST will run MODIS software in 32-bit native mode on SGI computers.

2.3.5 ECS Release B Hardware

Putney reported that Steve Wharton, EOSDIS Project Scientist, sent a memo back to Vince Salomonson regarding ECSÕ plans to purchase release B computer hardware before ECS even gets MODISÕ Version 1 software. Putney is still concerned that ECS is purchasing its hardware too early.

2.3.6 PES and PGS Toolkits

Justice asked when SDST plans to discuss the software tools the Science Team needs to evaluate its products. Masuoka responded that he needs additional information from the Team on their requirements for tools which he can then take to the ESDIS Project, or develop in-house.

Justice stated that he is interested in seeing some generic requirements for tools for the EOS data user community that will be evaluating the data. Masuoka responded that those requirements are not covered in the specifications yet. Justice encouraged SDST to push to the requirement put into the specs. Masuoka said he will discuss the topic further at the upcoming MODLAND-SDST Meeting.

Kaufman added that there also needs to be a tool that specifies the geometries related to MODIS; such as solar zenith angle, scattering angle, statistics on distance from glint as a function of latitude and season, etc. He feels that the Science Team will need tools for evaluating their own products. Again, Masuoka asked for Science Team members to send him e-mail stating what they want, and SDST will work the issues with MCST.

2.3.7 MAS Data

Hall stated that she has waited a year for MAS data from the April Alaska mission. She asked when she can expect to receive the MAS data. Masuoka took an action item to follow up on this issue. He stated that SDST can begin the processing as soon as the calibration is done.

Ungar noted that MAS will not have the blue band for its use during the BOREAS campaign.

2.4 Ground Data System Review

Esaias reminded the Team that the EOS Ground Data System Review is forthcoming. He and Justice are disappointed that currently no discussion is planned on direct broadcast. He feels that EOS Project has not given adequate attention to this subject. Murphy took an action item to meet with Jim Dodge, of NASA HQ Code Y, to determine how headquarters views direct broadcast as fitting into EOS ProjectÕs responsibilities.

Esaias added that he plans to attend the CEOS/IOC Ocean Color Cal/Val Meeting on March 22 - 26 in Toulouse, France, provided travel funds are available.

3.0 ACTION ITEMS

3.1 New Action Items

1. *Masuoka*: Provide an estimate at the Feb. 22 Technical Team Meeting of when MAS data from the Alaska campaign will be available.
2. *Murphy*: Meet with Jim Dodge to determine how headquarters views direct broadcast as fitting into EOS ProjectÕs responsibilities, and report back to the MODIS Technical Team.

3.2 Action Items Carried Forward

3. *SDST* : distill the questions and concerns about metadata into a list and prepare a strawman for resolving the concerns.